

I. Amendments

A. In the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of the Claims

Please amend claims ____ 26-45 as follows:

1 - 25. (cancelled)

26. (currently amended) A system for determining a position of a target, comprising:

a processing unit;

the target, the target being reflective and moveable;

a first light source, a first light beam splitter, a first light beam steering device and a first light detector, the first light source being configured to emit a first light beam towards the first light beam splitter, the first light beam splitter being configured to reflect the first light beam emitted by the first light source towards the first light beam steering device, the first light beam steering device being configured, under control of the processing unit, to sweep the first light beam over a first full angular range when operating in a first full sweep mode, and over a first limited angular range when operating in a first limited sweep mode, the first full angular range being greater than the first limited angular range, the target being configured to reflect the first light beam reflected from the first light beam steering device back towards the first light beam steering device

for reflection therefrom as a first target reflected beam and thence towards and through the first light beam splitter to the first light detector for detection thereby;

a second light source, a second light beam splitter, a second light beam steering device and a second light detector, the second light source being configured to emit a second light beam towards the second light beam splitter, the second beam splitter being configured to reflect the second light beam emitted by the second light source towards the second light beam steering device, the second light beam steering device being configured, under control of the processing unit, to sweep the second light beam over a second full angular range when operating in a second full sweep mode, and over a second limited angular range when operating in a second limited sweep mode, the second full angular range being greater than the second limited angular range, the target being configured to reflect the second light beam reflected from the second light beam steering device back towards the second light beam steering device for reflection therefrom as a second target reflected beam and thence towards and through the second light beam splitter to the second light detector for detection thereby;

wherein the processing unit is operably connected to the first and second light beam steering devices and configured to cause: (a) the first light beam steering ~~unit- device~~ to operate in the first full sweep mode ~~sweep through the first full angular range until the target is detected~~ near a first angle as a result of the first target reflected beam being reflected into the first light detector; (b) the second light beam steering ~~unit- device~~ to operate in the second full sweep mode ~~sweep through the second full angular range until the target is detected~~ near a second angle as a result of ~~by the second target reflected beam being reflected~~ into the second light detector; (c) the first light beam steering device to operate in the first limited sweep mode near the first angle ~~sweep through the first limited angular range in response to the first target reflected beam being detected by the~~

first light detector; and (d) the second light beam steering device to operate in the second limited sweep mode near the second angle ~~sweep through the second limited angular range~~ in response to the second target reflected beam being detected by the second light detector.

27. (currently amended) The optical position tracking system of claim 26, wherein the processing unit is configured to determine the position of the target on the basis of the first angle and the second angle ~~limited angular range and a first angular position associated therewith, and the second angular limited range and a second angular position associated therewith.~~

28. (currently amended) The optical position tracking system of claim 26, wherein the processing unit is configured to determine an absolute position of the target based on the first angle and the second angle ~~limited angular range and a first angular position associated therewith, and the second angular limited range and a second angular position associated therewith.~~

29. (currently amended) The optical position tracking system of claim 26, wherein the first beam steering device is configured to dither about the first angle when operating in the first limited sweep mode ~~position of the target after the first limited angular range has been swept through a first time.~~

30. (currently amended) The optical position tracking system of claim 26, wherein the second beam steering device is configured to dither about the second angle when operating in the second limited sweep mode ~~position of the target after the second limited angular range has been swept through a first time.~~

31. (currently amended) The optical position tracking system of claim 26, wherein the first beam steering device is configured to resume operating in the first full sweep mode ~~sweeping through the first full angular range~~ after the target is no longer detected by the system.

32. (currently amended) The optical position tracking system of claim 26, wherein the second beam steering device is configured to resume operating in the second full sweep mode ~~sweeping through the second full angular range~~ after the target is no longer detected by the system.

33. (previously presented) The optical position tracking system of claim 26, wherein the target includes a retro-reflecting surface.

34. (previously presented) The optical position tracking system of claim 26, wherein at least one of the first light beam steering device and the second light beam steering device is selected from a group consisting of a MEMS (micro-electromechanical system) motor beam steering device, a galvanometer beam steering device, an acousto-optic beam steering device, an electro-optic beam steering device, a grating structure beam steering device, a holographic structure beam steering device, and a scanning mirror beam steering device.

35. (previously presented) The optical position tracking system of claim 26, wherein at least one of the first light beam and the second light beam is generated by a light source selected from a group consisting of an incandescent technology-based light source, an LED (light emitting diode) technology-based light source, a semiconductor laser technology-based light source, and a rare-earth laser technology-based light source.

36. (previously presented) The optical position tracking system of claim 26, further comprising means for enabling a cursor in a computer to be controlled according to the position of the target.

37. (previously presented) The optical position tracking system of claim 26, further comprising means for inputting data representative of the position of the target.

38. (currently amended) A method of determining a position of a target using a system comprising a processing unit, the target, the target being reflective and moveable, a first light source, a first light beam splitter, a first light beam steering device and a first light detector, the first light source being configured to emit a first light beam towards the first light beam splitter, the first light beam splitter being configured to reflect the first light beam emitted by the first light source towards the first light beam steering device, the first light beam steering device being configured, under control of the processing unit, to sweep the first light beam over a first full angular range when operating in a first full sweep mode, and over a first limited angular range when operating in a first limited sweep mode, the first full angular range being greater than the first limited angular range, the target being configured to reflect the first light beam reflected from the first light beam steering device back towards the first light beam steering device for reflection therefrom as a first target reflected beam and thence towards and through the first light beam splitter to the first light detector for detection thereby, a second light source, a second light beam splitter, a second light beam steering device and a second light detector, the second light source being configured to emit a second light beam towards the second light beam splitter, the second beam splitter being configured to reflect the second light beam emitted by the second light source towards the second light beam steering device, the second

light beam steering device being configured, under control of the processing unit, to sweep the second light beam over a second full angular range when operating in a second full sweep mode, and over a second limited angular range when operating in a second limited sweep mode, the second full angular range being greater than the second limited angular range, the target being configured to reflect the second light beam reflected from the second light beam steering device back towards the second light beam steering device for reflection therefrom as a second target reflected beam and thence towards and through the second light beam splitter to the second light detector for detection thereby, wherein the processing unit is operably connected to the first and second light beam steering devices and configured to cause: (a) the first light beam steering unit- device to operate in the first full sweep mode ~~sweep through the first full angular range until the target is detected~~ near a first angle as a result of the first target reflected beam being reflected into the first light detector; (b) the second light beam steering unit- device to operate in the second full sweep mode ~~sweep through the second full angular range until the target is detected~~ near a second angle by ~~as a result of~~ the second target reflected beam being reflected into the second light detector; (c) the first light beam steering device to operate in the first limited sweep mode near the first angle ~~sweep through the first limited angular range in response to the first target reflected beam being detected by the first light detector~~; and (d) the second light beam steering device to operate in the second limited sweep mode near the second angle ~~sweep through the second limited angular range in response to the second target reflected beam being detected by the second light detector~~, the method comprising:

operating sweeping the first light beam steering device through the first full angular range in the first full sweep mode until the target is detected near the first angle thereby;

~~operating sweeping the first light beam steering device in through the first limited sweep mode angular range near the first angle~~ after the target has been detected;

~~operating sweeping the second light beam steering device through the second full angular range in the second full sweep mode~~ until the target is detected near the second angle thereby;

~~operating sweeping the second light beam steering device through the second limited angular range in the second limited sweep mode near the second angle~~ after the target has been detected;

determining, with the processing unit, the position of the target based on the first angle limited angular range and the second angle limited angular range.

39. (currently amended) The method of claim 38, further comprising dithering the first beam steering device about the position of the target near the first angle when operating in the first limited sweep mode ~~after the first limited angular range has been swept through a first time.~~

40. (currently amended) The method of claim 38, further comprising dithering the second beam steering device about the position of the target near the second angle when operating in the second limited sweep mode ~~after the second limited angular range has been swept through a first time.~~

41. (currently amended) The method of claim 38, further comprising the first beam steering device resuming operating sweeping through the first full angular range in the first full sweep mode after the target is no longer detected by the system.

42. (currently amended) The method of claim 38, further comprising the second beam steering device resuming operating sweeping through the second full angular range in the second full sweep mode after the target is no longer detected by the system.

43. (previously presented) The method of claim 38, wherein determining the position of the target further comprises determining the absolute position of the target.

44. (previously presented) The method of claim 38, further comprising controlling a cursor in a computer according to the position of the target.

45. (previously presented) The method of claim 38, further comprising inputting data representative of the position of the target to a computer.